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Physician and Other Ambulatory Services in Hospitals: Costs and Determinants

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Ambulatory care services are health services provided to patients who are not confined to an institutional bed as inpatients during the time period services are rendered. These health care services include services provided by physicians and other professionals, as well as ancillary services such as laboratory tests and radiology procedures. Although these services are provided in a variety of locations including physicians' offices, hospital sponsored group practices, hospital outpatient and emergency departments, and free-standing independent clinics, this project focuses on the ambulatory care provided by hospitals, primarily through hospital-sponsored group practices, organized outpatient departments (OPDs) and emergency departments (EDs). (The term OPDS will be used throughout this report to denote a variety of organization structures that hospitals use to deliver outpatient care).

Hospital-sponsored and associated ambulatory care has represented a large and growing portion of America's health industry. In 1981, 45 percent of U.S. hospitals had organized OPDs, and 85 percent had emergency departments. Outpatient revenues ($13.9 billion in 1981, excluding $13.9 physician payments) were approximately 15 percent of total hospital revenues, although their proportion of total hospital revenue has been increasing at a faster rate than inpatient revenues.

Ambulatory care is delivered in a variety of settings and takes a variety of forms. This project undertook the task of describing the delivery of ambulatory care by collecting accurate, detailed data for hospital-sponsored and hospital-associated settings. The project is part of a larger effort to obtain consistent information on ambulatory care provided in all settings and may be viewed as pilot project for such an effort.

Hospital-sponsored ambulatory care programs have been divided into the following categories, based on the ways in which they are governed, managed, and financed:

o Hospital-sponsored - hospital completely governs, manages, and finances the program.

o Hospital-associated - hospital governs and manages the program, which is financed through a contractual arrangement between the hospital and physicians concerning program expenses and revenue.

o Hospital as landlord - hospital owns the physical facility in which the program is located but does not govern, manage, or finance the ambulatory services rendered by physicians or other health professionals.

A second major objective of the project is to estimate hospital cost functions and derive estimates of the marginal and average cost of outpatient care. This portion of the project used statistical methods and data obtained from a large sample of hospitals to estimate the marginal cost of outpatient and emergency department care and to see how that cost is affected by hospital characteristics such as teaching status, the volume of inpatient care rendered, and others. The technique used is the recently developed multiple-input/multiple-output statistical cost function.

The data for analysis of the cost of hospital ambulatory care made use of; existing data from the American Hospital Association's (AHA) Annual Survey (covering the hospitals' most recently ended fiscal year as of Fall 1981); data from the Area Resources File, which provided county-level data on hospital market characteristics; the 1982 Hospital Ambulatory Care Survey.

The survey was sent to 5,825 U.S. hospitals and achieved an overall response rate of 29 percent. The low response rate was probably attributable to the length of the questionnaire and the sensitivity of cost and revenue data requested. As with many hospital surveys, the response rate was particularly low (13 percent) among for-profit hospitals and the probability of response was directly related to hospital bed size. Nevertheless, the sample includes a reasonable number of hospitals in various categories defined by size, metro/non-metro status, and geographic region. The sample, therefore, can be useful for cost function estimation even if it is not directly representative of the national population of hospitals.

The main descriptive findings of the study are:

- At the time of the survey, 58 perent of hospitals had an organized outpatient program or department. Large hospitals, teaching hospitals, and hospitals in metropolitan areas, however were much more likely to have such a program and provided a disproportionately large share of hospital outpatient visits.
- Hospital outpatient visits are distributed among a wide variety of physician specialties but emphasize primary care specialties.
- 20 percent of hospital revenue for outpatient care comes from the Medicare program and 16 percent comes from the Medicaid program, compared with 14 percent for Medicare and 15 percent for Medicaid in emergency departments and 39 percent and 10 percent for Medicare and Medicaid respectively for inpatient care.
- The majority of hospital ambulatory care services are provided in programs where the hospital bills for both hospital and physician charges and where physicians are compensated for services by the hospital. This is not the case, however, in many of the smaller hospital ambulatory care programs where physicians and hospitals often bill patients separately.

The cost function estimates are the first national estimates to be based on a multiproduct specification that controls for a large number of hospital characteristics and case mix. The major findings of the cost function analysis are listed below:

The cost of providing outpatient care varies greatly among hospitals. For both ED and outpatient visits, costs tended to be higher in hospitals with larger inpatient volumes; economies of scope were observed (i.e., cost-reducing complentarities) between inpatient and outpatient care.

Emergency department services exhibit strong economies of scale; that is, the cost per visit is lower in hospitals that produce a larger volume of ED visits. There is no evidence of economies of scale for outpatient visits, however,

This study confirms results of previous studies that have found economies of scale in the provision of inpatient care only for small hospitals (less than 100 beds). The results suggest that hospitals producing less than about 25,000 inpatient days annually could reduce per-unit costs by expanding output; but for most hospitals; there are no additional cost savings from producing inpatient services on a large scale.

The data used in this study did not permit a direct comparison of the costs of hospital outpatient services with the cost of comparable services in physicians' offices. The estimated costs of outpatient visits for most hospitals are, however, substantially higher than the average charges for physician visits reported in other studies. Possible explanations of the higher cost in hospitals may include differences in visit content, case mix, or efficiency.

There is also evidence that hospitals have higher costs if they have a greater proportion of Medicaid patients, are located in a metropolitan area, or are located in an area with high per capita income. This is true even controlling for input prices and limited measures of case mix.

Hospitals with a medical school affiliation are no more costly than other hospitals, but members of the Council of Teaching Hospitals (which tend to be large research-oriented institutions) have costs that are 15 percent higher than others, controlling for other factors.

Compared to private-not-for-profit hospitals, for-profit hospitals average 15 percent higher costs and nonfederal government hospitals average 8 percent lower costs, controlling for other factors (output, input prices, characteristics, case mix).

The results of cost function analysis indicate that cost function of the forms used in many previous studies do not capture some important aspects of hospital cost. The particular cost function features found to be most important that have not commonly been included in other studies are: a multiple-output specification, i.e., separate measures of hospital outputs for inpatient care emergency department visits, and outpatient visits; a two-dimensional measure of inpatient care (e.g., days and discharges, or discharges and average length of stay); specification of a nonlinear functional relationship between costs and major outputs, including interactions among outputs to capture economies of scope; and inclusion of case-mix variables for inpatient and outpatient services.

This study provides some new information about the strucuture of hospital costs for both inpatient and outpatient services. The cost function results can provide information, for example, that can help predict which hospitals are likely to benefit and which would be harmed under a prospective payment system such as the Diagnosis Related Group (DRG) system for inpatient care, or a possible similar program for outpatient care. The information on factors affecting hospital costs could also be useful for determining appropriate levels of DRG rates for various types of hospitals, such as teaching hospitals.

Another way in which these results can be used is to determine the cost-minimizing structure of the hospital industry. The findings of scale economies for very small hospitals and hospital emergency departments suggest that there may be efficiency gains from eliminating very small hospitals (of less than about 50 beds) and from avoiding duplication of emergency facilities where possible. There is no evidence that a similar situation exists for outpatient care.

The statements and data contained in this internal working paper are solely those of the authors and do not express any official opinion of or endorsement by the Health Care Financing Administration.

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